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CONTENTS

Introduction	T. W. Edminster	2
Editorial	R. M. Nelson	2
Schedule of Coming Meetings		3
Appearances by T. W. Edminster		3
Legislative Report	W. D. Ladd	4
AAAS Meeting Reports		5
Executive Development	R. F. Fraser	6
"How You Come Across, Why and What to Do About It"	P. P. Mok and D. Brant	7
"A Key To Scientific Research Literature"	M. H. Hodge	12
"The Four Stages of Professional Careers - A New Look at Perform- ance by Professionals"	G. W. Dalton, P. H. Thompson and R. L. Price	13

The SEA-FR Management Review is a joint effort of the Information and Personnel Divisions of the Science and Education Administration, U.S. Department of Agriculture. It is distributed to SEA-Federal Research executives and a limited number of other interested individuals. Articles appearing in the SEA-FR Management Review reflect the opinions of the authors, and do not necessarily reflect the positions of the Science and Education Administration or the U.S. Department of Agriculture.

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Following distribution of the first issue of the Management Review, an evaluation form was sent to a random sampling of the readership. The response to date indicates that you believe the publication is useful, and your comments will influence the editorial policy in future issues. We certainly want to know what you think of this effort, and I encourage you to send your comments and suggestions to Bob Nelson.

The Management Review seeks articles in four categories for reprint in issues that will appear every three months. We are looking for articles that address (a) management skills and behaviors, (b) organizing and managing research and development, (c) career planning and development for managers, and (d) program and social policy issues in research and development. In addition to reprints, the Review will try to keep you informed about such management concerns as legislative developments, schedules and reports of conferences that concern management and policy analysis, and also provide a forum for the sharing of experiences, concerns, and ideas among managers.

I look forward to learning about your reactions to this issue.

-- T. W. Edminster

The SEA-Federal Research Management Review (previously the ARS Management Review) is for your use--you are invited to participate in its content and directions.

If you think of a subject that would make a good article for the Review, or if you would like to write a piece based on your experiences in research management, call or drop a line to Bob Nelson, Information Division.

If you read an article that you believe might be appropriate for reprint or abstracting, send a copy with your impressions to Chet Cotton, Personnel Division.

If you attend a meeting, training session, or course that you think is especially valuable, send a brief evaluation to Dick Fraser, Personnel Division.

Letters to the Editor that are of general interest to the readership may, from time to time, be reprinted with the author's permission.

-- Bob Nelson

Scheduled Meetings of Interest

American Society for Public Administration Annual Meeting in Phoenix, Arizona, April 9-12, 1978. ASPA has a strong "Section on Science and Technology in Government."

Society of Research Administrators joint Southern and Midwest Sections Regional Meeting in Nashville, Tennessee, April 13-14, 1978.

Society of Research Administrators Western Section Regional Meeting in Seattle, Washington, May 21-24, 1978.

Academy of Management 38th Annual Meeting in San Francisco, California, August 9-13, 1978. The Academy has an active "R&D/Technology/Innovation Management Interest Group."

Conference for the Advancement of Research 32nd Annual Meeting in Biloxi, Mississippi, September 24-27, 1978.

Society of Research Administrators 12th Annual Meeting in Boston, Massachusetts, November 5-8, 1978.

Schedule of Meetings - T. W. Edminster

April

- | | |
|-------|---|
| 11-13 | USDA Regional Policy Workshop (no speech)
Syracuse, New York |
| 17 | Atwater Lecture (introduce lecturer, Dr. Robert Olson, to annual meeting of The American College of Physicians) Boston, Mass. |

May

- | | |
|-------|--|
| 22-23 | Morrison Lecture (introduce lecturer, Mr. Charles Lewis, to annual meeting of The American Institute of Architects) Dallas, Texas. |
|-------|--|

Legislative Report

In the last issue of Management Review we reported on some legislative developments which could impact on research programs. Since that article ARS, CSRS, ES, and NAL have been reorganized to form a new agency known as the Science and Education Administration (SEA). This has been done to improve coordination of these groups as directed by the Farm Bill (PL 95-113) and to implement the major thrusts contained therein. Also, as mentioned in the last issue of Management Review we have completed and sent to the Hill and to the EPA a report pursuant to PL 95-95 on the Department's efforts to encourage and support research programs that will increase scientific knowledge of the effects of changes in the ozone in the stratosphere upon animals, crops, and other plant life. Questions relative to this report should be directed to Dr. J. Lunin of the Federal Research staff on 344-3278 in Beltsville.

In new developments the Senate Committee on Agriculture, Nutrition, and Forestry ordered favorably reported the nomination of P. R. (Bobby) Smith to be an Assistant Secretary of Agriculture for Marketing. He was subsequently confirmed by the Senate. This occurred on February 24, 1978.

Oversight hearings were held in both houses during the last month on SEA programs. The Subcommittee on Nutrition, of the Senate Committee on Agriculture, Nutrition, and Forestry chaired by Senator McGovern held oversight hearings on USDA nutrition research authorities contained in the Farm Bill, on February 24, 1978. On the House side the Subcommittee on Department Investigations, Oversight, and Research of the House Committee on Agriculture held hearings on February 23, 1978, on implementation of Title XIV of the Food and Agriculture Act of 1977. These oversight hearings went well. Congressman de la Garza has scheduled for mid-March oversight hearings to review Federal research programs for processing, storage transportation, distribution and marketing before his Subcommittee on Investigations, Oversight, and Research.

--W. D. Ladd

AAAS Meeting Reports

A substantial number of FR scientists attended the AAAS meetings in Washington, D.C., February 12-17. Each was asked to submit a short report of the sessions attended. These are being compiled into a summary which will be available from Bob Nelson, FTS 447-6691. Two samples of the attendee reports are printed below.

President's Public Lecture

"Science and Its Place in Society" by Emilio Q. Daddario, President of AAAS.

This talk was a statesmanlike presentation of proposed public policy concerning management and support of research as the resource base for future development of society. His case for steady support of basic and applied research teams led by scientists of proven ability was presented quietly but eloquently. The many potential weaknesses of overemphasis on short-term grant support of research programs were accurately described: excessive paper-work, unstable research teams, superficial crash programs. If the National Science---Policy Act of 1976 will in fact help establish the favorable climate necessary for productive research efforts, as described in this talk, it may turn out to be one of the more important recent pieces of legislation in long-term benefits to society.

Principles discussed by Daddario are very relevant to decisions being made in reorganization of the USDA efforts under SEA-FR.

Reported by: G. E. Dickerson, NCR, SEA-FR, Lincoln, NE

AAAS Public Lecture "Pangs of Science" (Speaker: Philip Handler, President, National Academy of Science)

Reported by: W. J. Lewis, SR, Tifton, Georgia

Synopsis: Dr. Handler presented a convincing address on the complications that have resulted from too much intermingling of science with politics--much as a result of actions of scientists themselves. He presented several examples where decisions have been made on public attitude rather than on scientific information. He emphasized the importance of not being over zealous and announcing ideas before data are complete, admitting the magnitude of uncertainty that is frequently present in initial findings, and not making promises that we cannot keep. He stressed that scientists can best serve the public interest by staying in the realm of science--not politics.

EXECUTIVE DEVELOPMENT

Workshop for Potential Executives

A three-day workshop is scheduled April 10, 11, 12, at the National Agricultural Library. The focus of the workshop will be learning needs of the Potential Executive participants as related to Program, Human and Physical Resources Management. Top level SEA Executives will conduct the training. Participation in this workshop will be limited to members of the Potential Executive Group.

The subjects to be discussed include:

- "The Research Program Evaluation Process"
- "ZBB and the 1979 Budget Development Process"
- "Research Leadership: Issues and Expectations"
- "The TA System: What is it? Critical Issues"
- "The Research Grade Evaluation System and Scientific Productivity"
- "How Area Directors Manage Programs and Resources"
- "Position Resource Management--Making it Work"
- "Effective Management Utilization of Data Systems"

Workshop for New Executives

A four-day planning/assessment workshop for New Executives was conducted last December by Leadership Systems, Inc. of Silver Spring. The participants were asked to analyze the functions of a Research Leader (RL), determine their appropriateness for a Research Leader, identify major issues or problems facing RL's, make recommendations for improving the current situation, and prepare an implementation plan for management.

Dr. Harold Sandstead, Director of the Human Nutrition Lab in Grand Forks, North Dakota presented the group report to Dr. McCracken at a briefing held during the final evening session.

A 60 minute videotape of the briefing and the group discussion which followed is available from the Training and Career Development Branch in Hyattsville, Maryland. Telephone: 436-8123

Dick Fraser

"Good article... helpful in that it provides additional perspective and food for thought."

--G. F. Sedgwick

"At SRRC, we have gotten some good insights from this article."

--M. E. Carter*

*Dr. Carter suggested this article to the Editors.

How you come across, why and what to do about it

by
Paul P. Mok and Deborah Brant

Who of us hasn't wondered why it seems so difficult to communicate with some people, and why we hit it off instantly with others? Sometimes there seems to be a basis of understanding that is stronger than could be explained just by the sharing of a common background or related profession. And sometimes sharing doesn't seem to help a bit. How come?

Have you ever been surprised by an abrupt breakthrough in understanding when talking to a friend or fellow technologist? You may have spent hours presenting a theory or strategy and all the relevant information that goes with it—facts, logical options, background material—and watched your friend or associate grow progressively more restless. Then you decide to tell him or her how it *feels*, and suddenly your listener becomes enthusiastic and you have instant communication.

What accounts for this change? Why do we seem to relate better to some people than to others? Why are we on one person's wavelength and not another's? It's not just a matter of "stubbornness", or of role definition (i.e., researcher vs. administrator). There's more.

A new communications attitude was unlocked by Carl Jung, a Swiss psychoanalyst. In his monumental work,

Psychological Types, only recently translated in its entirety and published in the U.S., Jung articulated a theory of personality so revolutionary in its divergence from so-called modern psychology that most personality theoreticians have, at this writing, refused to honor it with rebuttal, much less to assimilate it. To do the latter would involve nothing less than scrapping fifty years of psychological "truth."

What really accounts for personality differences, Jung said, is that every individual develops a primacy in one of four major behavioral functions:

Intuiting: speculating, imagining, envisioning, day-dreaming, creating, inventing.

Thinking: Rationally deducing, analyzing, correlating, identifying and weighing options, reflecting.

Feeling: Empathizing, perceiving, associating, remembering, relating.

Sensing: Acting—doing, relying on sensory data, competing, striving for results, living in the here and now.

These characteristics reflect themselves in four communicating styles: Intuitor, Thinker, Feeler, and Sensor.

An important concept is that we tend to be most receptive to a style that is similar to our own. It means that if I am operating in one style, or channel, and you are operating in another, then it is likely that we are going to pass each other like ships in the night—silently, without really communicating. It's the sort of thing you feel when you put down the phone, or leave an interview and say to yourself, "He didn't give me a chance to explain", or "we just weren't on the same wavelength."

Reprinted with permission from ChemTech, Vol. 7, December, 1977, 720-724. © 1977, American Chemical Society.

The problem may well have been that you were operating in different Jungian styles. There are few "pure styles"—most people use a blend of styles as they indeed exhibit personality characteristics of more than one style. Yet most of us do operate and feel most comfortable in one dominant style. It is important at this point to emphasize that no one style is "good" or "bad." Each style can be used effectively or ineffectively. Yet while there are positive characteristics associated with each style, there are also negative ones that usually result from overextending the positive. Just as "any virtue carried to an extreme can become a crime"—so any strength carried to an extreme can become a weakness.

We like to think of this sort of analysis by imagining a radio's volume control knob. The more you turn it to the right, the louder the sound gets. At some point the sound becomes too loud and is distorted. The same thing happens with our strengths.

For example, consider an overextended Sensor who becomes so *competitive* and *bottom-line oriented*, that he is seen by others as cut throat, power hungry, or money hungry. Or perhaps the over-cautious Thinker who becomes so detailed and analytical that he never makes a decision because he insists first in holding the proposition up to the light from every possible angle. He may thus be seen as rigid, nit-picky and inflexible by an Intuitor. And Intuitor's originality may be viewed by Thinker as unrealistic; his broad-gauged, "big picture", imaginative way of visualizing may seem "far-out", scattered, impractical. The Feeler's spontaneous, empathetic, probing and introspective mode of behavior may seem overly impulsive, too personalized, sentimental, and subjective.

Each of us is naturally endowed with one of these styles as our "primary" style. In turn, we also have "secondary" or back-up styles, and in neither case is the style good or bad. It depends on the situation.

You can assess style from behavioral clues

Clues that reveal a person's Communicating Style are everywhere: the condition of his desk, types of pictures on the wall, general office decor, yes, and even attire. The dominant style is depicted in the way a person talks on the phone, in letters and memos, and in his surroundings. Here are a few examples:

On the phone

Intuitors: Wordy but aloof—impersonal.

Thinkers: Ordered, measured, business-like manner.

Feelers: warm and friendly.

Sensors: Abrupt, to the point. Control the conversation.

In letters, memos

Intuitors: Writes as he speaks, in intellectual, often abstract terms.

Thinkers: Well organized, structured, specific, tight.

Feelers: Short and highly personalized.

Sensors: Curt, action-oriented, urgent.

In surroundings

Intuitors: Futuristic, "mini-think-tank" style.

Thinkers: Correct, non-distracting, tasteful but conventional.

Feelers: Informal, homey, warm, personalized.

Sensors: Cluttered.

If an individual knows his own Communicating Style, that is a plus. If he is able to assess the Communicating Style of the person he is dealing with, that is another plus. Place the two together and you have the knowledge needed to defuse many personality conflicts.

CST

With all this in mind we think about Communicating Styles Technology, CST, a powerful tool that requires

What's your style?

For a clue to your Communicating Style, complete this sample survey.

Each self-descriptive statement has four endings. Write the number 4 in the box following the completed statement that best describes you. Insert 3 after the ending that is next most like you, 2 after the next most, and 1 after the completed statement that is least descriptive of you.

I am likely to impress others as:

- ☐ A. practical and to the point.
- ☐ B. emotional and somewhat stimulating.
- ☐ C. astute and logical.
- ☐ D. intellectually oriented and somewhat complex.

When confronted by others with a different point of view, I can usually make progress by:

- ☐ A. getting at least one or two specific commitments on which we can "build" later.
- ☐ B. trying to place myself in the "shoes" of others.
- ☐ C. keeping my composure and helping others to see things simply and logically.
- ☐ D. relying on my basic ability to conceptualize and pull ideas together.

I feel satisfied with myself when I:

- ☐ A. get more definite things accomplished than I planned.
- ☐ B. comprehend the underlying feelings of others and react in a helpful way.
- ☐ C. solve a problem by using a logical or systematic method.
- ☐ D. develop new thoughts or ideas that can be related.

Add all the numbers in the "A" boxes, which refer to the Sensor Style. Then add the numbers in the "B" boxes (Feeler Style), "C" boxes (Feeler Style), "C" boxes (Thinker Style) and "D" boxes (Intuitor Style). The highest score will indicate your primary Communicating Style, with the second highest score indicative of your back-up or secondary style. Thus if your highest score is 12, recorded in the "A" boxes, this could indicate your primary style is Sensor. Now guess how your boss would respond. Your spouse.

Information on ordering the complete survey and related CST material can be obtained by phoning 214-357-0487, or writing Dr. Mok.

*This inset is reprinted with permission of TWA
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... I don't care
how you **FEEL**
about it ...

practice and understanding. "Style-Flex", the practical application of this technology, is the key that often can unlock communication problems. "Style-Flex" refers to the "momentary change of styles." Everyone is suddenly on the same wavelength. Nobody's computer is flashing "Reject!" Let us illustrate.

Improve boss-subordinate relations

CST can initiate a new way to assess boss-subordinate conflict. A constructive and healthy approach would be for the manager and the employee to re-examine their relationship in objective terms; to do so periodically; and to discuss their feelings about the relationship and the ways they work with one another.

Such objective evaluation will usually reveal that certain elements of conflict exist not simply because of work pressures, but because of Communicating Styles differences. Both the boss and subordinate unknowingly communicate disrespect to one another, and conflict becomes inevitable. The boss thinks:

"If only he'd get moving, work more quickly."

"I wish he'd step back and look at what he's doing to make sure he's working on real priorities."

"She's productive all right, but I have to get her to redo almost everything she does; if only she'd emphasize quality!"

"Jim gets the job done, but at what a price! He doesn't care who he alienates. If only he could develop and maintain effective relationships!"

Subordinates are often on a different track:

"If only he'd start supporting *me* and my theories or at least listen."

"I wish she'd sit down with me periodically and review what she thinks is really important."

"He nit-picks everything I do. I can't ever seem to be right!"

In the usual work situation, both the manager and the employee are aware of the manager's position power. Therefore, when friction emerges in the relationship, there is an "unwritten law" that says the employee is at fault. After all, since the manager holds the key to his subordinate's advancement, the employee doesn't want to "rub the boss the wrong way." Even when the employee perceives the manager as being at fault, he usually keeps such perceptions to himself and diligently tries to adjust and adapt to the boss' expectations . . . but with resentment.

Because of this position power, it is often difficult for the manager objectively to analyze and deal with any real

conflict between himself and a subordinate. It's much easier and less time consuming to view the subordinate's performance as "ineffective", "off the mark", or "inefficient."

When a manager communicates such reactions, however—verbally or non-verbally—tension and unpleasantness are sure to crop up. Eventually, a mutual negative feeling characterizes the relationship. The boss relies more heavily on his position power to get the subordinate to move. The subordinate, thus demotivated and threatened, invests as much energy in defending himself as he does in doing his work. The performance of each individual is likely to suffer. A lack of teamwork exists; each individual is resentful and feels dislike toward the other; yet neither one understands what caused the conflict or knows how it might be resolved. This is where CST comes in.

Here is an example of Style Conflict.

Thinker Boss tends to emphasize planning, facts, careful evaluation of alternatives, written communication and quality.

Sensor subordinate tends to emphasize fast action, aggressive decision making, oral communication and high production.

Given such style differences, it is predictable that the Thinker boss could view the Sensor subordinate as being sloppy; hasty; as failing to identify and think through optional courses of action; as being indifferent to high quality standards.

Similarly, it is predictable that the Sensor subordinate could view the Thinker boss as moving too cautiously; as being bogged down in plans and paper work, as wasting time in writing and documenting, as a frustrator.

Conflict or teamwork?

Whether it's to be conflict or team play depends on attitudes. Both subordinate and manager should try to avoid letting himself become the victim of his Style Screen. Here's what each can do:

- Assess your own styles: Identify how you may over-emphasize major Jungian styles in your behavior.
- Share your own Communicating Style assessment with your subordinates or boss. Ask for feedback on your overextensions and how they affect work and people.
- Identify your behavior pattern *under stress*. Determine which work situations trigger stress for you and let colleagues know about them.
- Remember that a relationship is fluid, not set in concrete. It changes; grows and becomes stronger, or festers and weakens. Don't leave the nature of your relationships to chance. Assess each. Discuss it. Review it. Build together as allies with a common cause: excellence in work and mutual support in working together!

With his penchant for logic, identification of alternatives, facts, problem-solving and documentation, Thinker boss can help Sensor subordinate to work on fewer projects in greater depth and thoroughness. He can help Sensor subordinate to invest more "front-end" time in committing ideas and plans and possible consequences to paper as a method of clarifying and reforming his thinking and improving his success batting average.

Sensor subordinate can help Thinker boss to see that there are also dangers in overplanning; that some opportunities that should be seized won't wait until the plans are

missed that together they might work out a Thinker/Sensor system for quickly yet accurately evaluating such opportunities. Sensor subordinate can help Thinker boss by planning with him his time-saving techniques and action approaches, including how to better utilize a secretary; how to use a "to do" list and monitor it with a "got done" list.

CST in counseling

To be effective, counseling must be two-way. Implicit in the above example is the basic concept that the boss:

- Must be willing to share style-data about himself.
- Must be willing to explain objectively to the employee how his own style translates into planning, assigning, supporting and monitoring performance.
- Must solicit feedback from the employee concerning the employee's perceptions of the boss' style-related behavior.
- Must *accept* the subordinate's feelings.
- Must be willing to implement changes in his management style that will help the employee become more effective.
- Must be able to listen, accept, and use criticism constructively.
- Must demonstrate supportive behaviors, psychological strokes, empathy, and reinforcement.
- Must monitor the employee's behavioral change.

And the subordinate must be able to do the same—and will if the boss sets the example.

CST in role casting

It is important to relate style requirements of the job to the natural style of its holder. A good job description lists key responsibilities and implies suitable styles. Review job descriptions to see if they're up to date and adequately reflect reality.

Miscasting employees can have detrimental results on the employee and on the company. A case in point involved a medium-sized chemical company and its decision to hire a traffic manager. For years, this company had used an assistant office manager to perform traffic functions. When shipping, scheduling, and field delivery requirements mushroomed, management decided it was time to seek outside the organization for a full-time manager to perform these critical functions. Without bothering to analyze the key responsibilities of the new position, the Executive Vice President told the Vice President of Personnel, "Get me a good traffic manager, and get him fast."

They did—a 28-year-old man who impressed the interviewers with his academic background, professional credentials, and ability to verbalize intelligently about national distribution issues. The fact that he would receive a doctoral degree one month later in traffic management clinched their decision.

Five months after his hiring, it was apparent that the young man had failed to perform satisfactorily. Operational problems were worse than when the new manager was hired. Thus, after considerable organizational frustration and with a serious blow to the young man's ego, he was terminated. What went wrong?

The young man's "failure" was, in fact, a symptom of a serious management selection error. Post-hiring analysis revealed that what the company needed most in the traffic position was an action-oriented, energetic, fast-moving,

aggressive problem-solver. In short, a practical, primary Sensor. The man they hired was an intellectually-oriented, creative, idea-generating, primary Intuitor who had been well-suited to his college assistantship in traffic management but who was dramatically ill-suited to the rough and tumble daily conflicts with outside unions and the pressure-cooker demands of instant on-the-spot decisions and time-urgent requirements of field salesmen, outspoken customers, and production schedulers.

Most well-managed firms do identify, prior to selection screening and "back-home" interviewing, the kind of individuals they seek. However, too often they do so in "global" rather than in specific terms. Thus, for example, personnel departments communicate in writing that the research department is seeking "highly motivated, professionally-oriented chemists who demonstrate evidence of academic achievement, community involvement and interpersonal competence."

The young traffic manager in the chemical company measured up to these global characteristics and yet could not satisfactorily perform in the position for which he was hired. Similarly, dozens of Ivy league graduates and PhDs in Big Board chemical companies would have been judged "excellent" according to the above generic criteria. Yet, they did not, in fact, develop into effective technologists or salespeople they were chosen to become, and were terminated, chose to leave that organization, or hung on miserable.

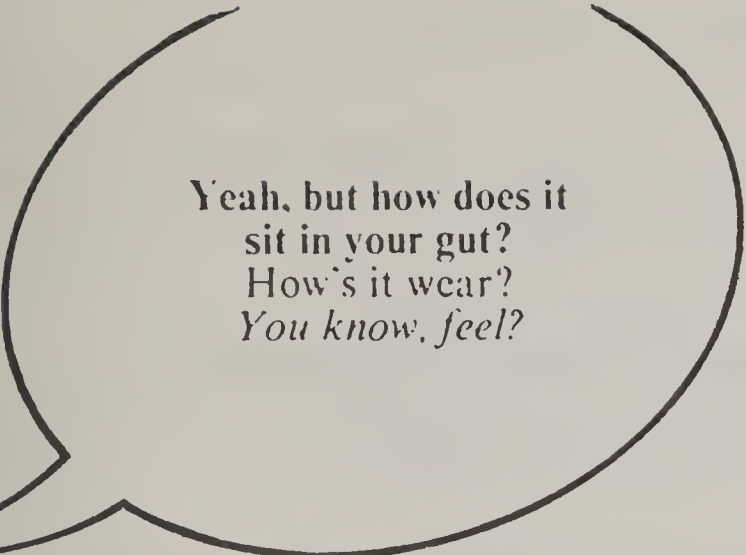
CST in selling

A selling transaction, be it goods, programs, or ideas, is a communication exchange in which two individuals develop a mutual solution to a problem they both care about. Unless each individual is really committed to the solution they reach, it is not a true selling transaction. Many times Seller is more interested in selling his product than in understanding and solving Buyer's problems. And many times Buyer will agree to try "the product", but without genuine commitment. Our research shows that he generally will not "stay sold" and will not be a repeat Buyer. The best sales relationships are long-term ones based on mutual beliefs and commitments.

A significant question, then, for one who seeks to sell his ideas, products, and services is "How can I sell so I convey my feeling of genuine respect for Buyer's problems and thereby stimulate communication?"

That's what Communication Style Technology in selling is all about . . . whether you wish to sell a customer a product or influence your boss to accept a new idea. Often what Buyer senses is not *what* the Salesman is communicating, but *how* he is communicating. If Salesman does not know how he is "coming through", does not know *how* the customer is receiving the messages he is sending, he is failing to monitor his Communicating Style. Such a person needs to be more sensitive to his interactions with other people. It is usually this insensitivity that Buyers describe in terms that range from disrespect and self-centeredness to plain unvarnished arrogance.

CST is *not* a substitute for effective planning, including learning as much as possible about Buyer's business, problems, objectives, and alternatives. However, all of these activities, necessary as they are, will not, taken separately or together, convince Buyer you are really capable of speaking his language and thus of understanding and serving his need. Sensitivity to Communication Style enables one to leverage what he knows to reduce dissonance and



Yeah, but how does it
sit in your gut?
How's it wear?
You know, feel?

conflict, and to save time in getting on the listeners wavelength.

In order to do these things, it is necessary accurately to read your own communicating styles; accurately to read the customer's receptivity styles; and accurately to predict how these styles will interact. By doing this you can analyze effectively all sorts of transactions before they even occur! Here are some illustrations.

Interaction

Sensor salesman says

"Today I'm going to offer you a chance to get significant returns on your investment dollars, a chance to leverage the performance of your organization and possibly achieve a 17% rate of return in the next two quarters."

Feeler customer says

"Hey, slow down, friend, we haven't even discussed what I'm trying to do!"

Sensor salesman thinks

Aha. Right now this guy would rather talk than act. What's the matter with him? Does he have a personal aversion to money?"

Feeler customer thinks

"He's going to offer me some chance, I bet. He's going to lay it on me, his latest package. Rush, rush—money, money—big deal—this fellow thinks we're all programmed like he is—do anything for a buck."

Maybe there is merit in talking about noncommittal, nonthreatening things before getting down to business: the weather, a vacation, sports. Other cultures seem to appreciate this exploration more than Americans do.

Interaction

Intuitor salesman says

"I had a fantastic idea on the beach last week. I pic-

Paul P. Mok is President of his own management development firm that conducts in-house and train-the-trainer workshops in communication, management, and staff development skills. He is author of four books, two self-study kits, and the popular Communicating Styles Survey and Interpretation Manual. A graduate of Cornell, Dr. Mok obtained his master's and doctorate in counseling psychology at Harvard.

tured your whole data processing system, the way it was organized and coordinated, and I could just see how the missing pieces should fit. It was like a jigsaw puzzle. And today, I've got those missing pieces."

Sensor customer says

(Sarcastically) "Oh, sure."

Intuitor salesman thinks

"This fellow has the imagination of a boiled potato!"

Sensor customer thinks

"This guy and his beach! Puzzles! Whew! Doesn't he know I've got to make a buck, like right now!"

Identifying styles

In order to avoid such crossed communications, it is necessary to plan not only WHAT will fill the customer's needs and help solve his problems, but also HOW your message may be most effectively communicated. Remember these important points:

*People are most receptive to a communications approach that is similar to their own primary style. Thus, it becomes necessary to be able to *recognize* another person's primary style in order to adapt (modify) your style to match his.

*People reflect their primary style in their behavior, so

—*expect* to get mixed signals

—*look* for main trends

—*look* for primary and "back-up" styles

Once you've identified a person's primary and back-up (secondary) Communicating Styles, you can plan on what to expect. Here are some examples that will illustrate:

To an Intuitor: Mr. Johnson, I'd like to show you how our new modulator will help your organization reach its *long-term potential*.

To a Feeler: Mr. Johnson, I'm aware of some of the pressing concerns you might be facing at this time. I believe our modulator will help you and your people overcome some of these problems.

To a Thinker: Mr. Johnson, I would like to give you the background on our modulator and then list the ways I think it will reduce overhead, increase productivity, and improve profit margin.

To a Sensor: Mr. Johnson, our modulator will help you increase your sales by 35% in 90 days. Are you interested?

See, there *are* different approaches you can use with different people. By tailoring your approach you will be more effective and be on your listener's wavelength.

Authors' address: Paul Mok & Associates, 4519 W. Lovers Lane, Dallas, Tex. 75209.

Deborah Brant, a graduate of the University of Alabama, is a free lance writer involved with public relations and marketing. She earlier served as Education Director at Paul Mok & Associates. In her spare time Deborah is an enthusiastic skier and tennis player.

A KEY TO SCIENTIFIC RESEARCH LITERATURE

What he said

It has long been known
that. . .

Of great theoretical and
practical importance. . .

While it has not been possible
to provide definite answers to
these questions. . .

The operant conditioning technique
was chosen to study the problem. . .

Three of the Ss were chosen
for detailed study. . .

Typical results are shown. . .

Agreement with the predicted
curve is:

excellent
good
satisfactory
fair

It is suggested that. . . It is
believed that. . . It may be that. . .

It is generally believed that. . .

It is clear that much additional
work will be required before a
complete understanding. . .

Unfortunately, a quantitative
theory to account for these results
has not formulated.

Correct within an order of
magnitude. . .

Thanks are due to Joe Glotz for
assistance with the experiments
and to John Doe for valuable
discussion.

What he meant

I haven't bothered to look up
the original reference but. . .

Interesting to me. . .

The experiment didn't work out
but I figured I could at least
get a publication out of it. . .

The fellow in the next lab already
had the equipment set up.

The results on the others didn't
make sense. . .

The best results are shown. . .

fair
poor
doubtful
imaginary

I think. . .

A couple of other guys think
so too.

I don't understand it.

I can't think of one and neither
has anyone else. . .

Wrong.

Glotz did the work and Doe
explained what it meant.

Milton H. Hodge
University of Georgia

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"Very readable... I feel all our readership would find much useful information in this article."

-- E. L. Kendrick

"A fine article that is worthy of thoughtful reading... gets better as it progresses."

-- G. F. Sedgwick

This model describes how each one of four successive career stages—apprentice, colleague, mentor, sponsor—involves different tasks, different types of relationships, and different psychological adjustments. High performance is performing well within the appropriate role.

The Four Stages of Professional Careers— A New Look at Performance by Professionals

Gene W. Dalton
Paul H. Thompson
Raymond L. Price

A person has to be able to change or he'll stagnate, but it is so hard to change in this organization. I'd like to move up or pursue a related career, but I'm cast in the role of radiochemist and I don't know how to move out of it. I have to go outside of work to get my rewards. [40-year-old engineer]

I really wonder what to do. I like technical

work, but when I look at the specialists 15 years my senior still in those little cubbyholes, it scares me. I think I'll get a chance to try management, but if you let yourself get too far from your field, you're out on a limb with no way back if it doesn't work out. [28-year-old scientist]

I manage nearly three hundred professionals;

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and by all practical standards, I'm very successful. But I'm not satisfied. I feel it is time to make a change and try doing something new. However, it might mean that I wouldn't directly manage anyone anymore. I wonder what would happen to my career and my influence around here. [52-year-old manager]

These are some of the concerns we've heard expressed as we have talked with several hundred professionally trained employees over the past three years. These are the knowledge workers, the fastest growing part of our workforce, who at present constitute 32 percent of the workforce. (Blue collar workers are 33 percent of the workforce.) Their initial training was as engineers, scientists, accountants, MBAs, and so on, and they have spent their working lives as employees of large, complex organizations dependent in large part on their professional skills. Having done well in college and graduate school, they entered these organizations with high career expectations. They brought with them scarce and valued skills, but few had any clear understanding of what forging a career in an organization is like. Few came with any understanding of the constantly changing activities, relationships, and emotional adjustments they would have to learn to manage if they were to remain highly valued contributors throughout their careers.

Perhaps it should come as no surprise, therefore, that we so often perceived a sense of frustration, bewilderment, even betrayal, as these people spoke about their careers. Any career guidance they may have received in college or graduate school was usually limited to helping them choose courses or majors. No one had given them an accurate preview of what life in a complex organization would be like.

Nor did many of them feel they had received much more help in career planning after they entered organizational life. A few talked about getting some valuable training or advice from a supervisor or a friend. But a large number expressed feelings that are captured best by a comment from a young financial analyst in a bank: "Nobody has helped me do any real career planning. I suspect it's because they're not sure of where they are going themselves."

We have in fact encountered uncertainty among managers of professional employees about how to guide the careers of their subordinates. From these managers we constantly heard comments such as these:

We bring in about a dozen of the best young people we can each year. Two years later, about eight are contributing. The rest are floundering and usually leave. I wish I could understand it. Those who floundered came with records as good as the others. [Laboratory Director]

We have some men in their 40s or 50s who are among our lowest performers. Their salaries are out of line with what we get from them, but they have been here so long we aren't likely to bring ourselves to fire them. We've told them to take courses to get current, but I can't see it's had any effect. What will we do with them for the next 15 or 20 years? [Chief Engineer]

CAREER MODELS

Those of us who study careers in organizations have found ourselves perplexed by these same questions. Several years ago we began examining the relationship between age and performance among engineers. In a study of 2,500 engineers in seven large organizations, we found a negative correlation after age 35 between age and performance rating. The older the engineer after the

mid-30s, the lower his performance rating was likely to be.

But the message seemingly implied by these statistics was brought sharply into question when we examined our data more closely. Not all older engineers had low ratings. In fact, the top third of the engineers over 50 were almost as highly valued as the top third in any age group. Many engineers had remained highly valued contributors for the duration of their careers. But more of those in their 40s and 50s had low ratings than did younger engineers.

Why have some professionals remained high performers over the years while others have not? What have they done differently?

Existing career models

We have concluded that part of the confusion about careers has grown out of the career models we have all used, explicitly or implicitly. The first and most influential of these is of course the pyramidal model of organizations (and of careers), so graphically illustrated by most organizational charts. Authority, status, and pay all increase as the individual moves up the chart.

Implicit in this model is the concept that career development consists of moving as rapidly and as far up the pyramid as possible. As professionals first moved into industrial and governmental organizations, this was the sole career model they encountered. Many professionals with advanced degrees became prime candidates for management positions.

But there were also many who were dismayed to find that the ability and willingness to manage seemed almost the sole criteria for advancement, recognition, or reward in their organizations.

Similarly many organizations found that the pyramidal model failed to take important realities into account. Too often, they found themselves promoting a key technical specialist to a management position because it was the only way to reward him. More and more firms began to set up special new pay and promotion schemes such as the dual ladder for their professional employees in order to recognize the critical contributions they could make as individuals. In almost all those organizations, however, professionals began griping about the realities of the dual ladder:

"Ours isn't a real dual ladder; it's been bastardized.

It's been filled with ex-managers."

"The men in the upper technical slots don't do real technical work. They prepare proposals and brochures."

"The real rewards don't go to those on the technical ladder."

These criticisms have not subsided. Instead, they have persisted and indeed increased in recent years.

The obsolescence model

As the number of professionals with 20 and 25 years' experience grew, a new problem and a new model of professional careers began to emerge. The low performance ratings of many of these senior employees led to use of the metaphor of obsolescence. The picture projected by the metaphor was that of a rapidly changing technology in which the skills of the older professionals were rapidly outdated and in which recent graduates who had mastered the latest tools and techniques were at a premium.

Interestingly, the model carries with it an implied solution to the problem.

When it is assumed that professionals become obsolete like machines, when we begin to talk as if a professional education has a half-life of so many years, like a uranium sample, the obvious solution is to update or reeducate professionals and to restore them to the state they were in when they came out of school—on top of the newest and most sophisticated techniques.

Millions of dollars have been spent on continuing education programs in companies and in universities. In addition, professional groups have pressed for legislation that requires continuing education as the price of continuing professional practice. For example, lawyers in Minnesota are required to take the equivalent of 15 course hours a year to avoid being placed on a restricted status. The Engineering Foundation of Ohio recently suggested a law requiring almost the same qualification of engineers. Accountants in several states face the possibility of having to return to the classroom in order to retain their professional status.

All this money and effort rests on a questionable model. It has not been demonstrated that courses improve performance. Our studies have in fact shown repeatedly that the high performers are no more likely to have taken continuing education courses than the low performers.

A NEW MODEL

If the high performers are not taking more courses than their peers, how *are* they different? What, if anything, are they doing differently? In what respects have their careers been different?

To answer these questions, we interviewed 550 professionally trained em-

ployees: 155 scientists in four laboratories, 268 engineers in four organizations, 52 accountants in three firms, and 75 professors in three universities. We selected our subjects to give us representative samples of high- and low-rated performers. We began by simply asking them to describe their own careers and those of their fellow professionals. What, we asked them, characterized the high performers they knew? We coded their responses carefully and compared them with the way the high-rated and the low-rated performers described their own careers.

Our early analysis yielded only frustration. Each promising uniformity exhibited too many contradictions. Each new hypothesis failed to find support in the data. It was only when we began to look at the effects of time that a clear pattern began to emerge. High performers early in their careers were performing different functions from high performers at mid-career. And both these groups were different from high performers in late-career.

As we investigated further, it became increasingly clear that there are four distinct stages in a professionally trained employee's career. Each stage differs from the others in the tasks an individual is expected to perform well in that stage, in the types of relationships he engages in, and in the psychological adjustments he must make.

It was the individuals who were moving successfully through these stages who had received the high performance ratings. Conversely, individuals who had remained in the early stages were likely to be low-rated.

In Stage I, an individual works under the direction of others as an apprentice, helping and learning from one or more men-

Figure 1

FOUR CAREER STAGES

	Stage I	Stage II	Stage III	Stage IV
<i>Central activity</i>	Helping Learning Following directions	Independent contributor	Training Interfacing	Shaping the direction of the organization
<i>Primary relationship</i>	Apprentice	Colleagues	Mentor	Sponsor
<i>Major psychological issues</i>	Dependence	Independence	Assuming responsibility for others	Exercising power

tors.* In Stage II, he demonstrates his competence as an individual contributor. In Stage III, he broadens and acts as a mentor for others. Those in Stage IV provide direction for the organization. Figure 1 shows some of the central features of each stage. It is important to realize that while the stages can be thought of as distinct, there are elements in each stage that are present in each of the other stages, although in a different form. Our description of each stage focuses on the issues that clearly differentiate one stage from the next.

STAGE I

When a young professional joins an organization, he is immediately confronted with several challenges. He must learn to perform at least some of the organization's tasks competently. He needs to learn which elements of the work are critical and which activities require the greatest attention. He

must learn how to get things done, using both formal and informal channels of communication. Finally, he must do this while he is being closely observed for indications of competence and future potential.

Because he lacks experience, and because others do not yet know how much they can rely on his judgment, he works under the fairly close supervision of a more experienced person. In other words, he must usually begin by helping someone else do the work for which no supervisor is responsible.

Activities

Much of the work in Stage I may involve fairly routine duties. One manager observed:

There is a lot of detailed work to be done between the time a project is conceived and its actual implementation. A new person is often stuck with many of these detailed tasks. I like a subordinate who recognizes that someone has to do the routine work and therefore doesn't complain about it all the time.

However, it is important for the person in this stage not to become completely bogged down in this detail work. He is also expected to show some initiative and be

* We would like to acknowledge the helpfulness of the ideas of Daniel Levinson and his associates at Yale University. Their concept of the mentor helped us understand much of the phenomena we observed in this stage.

innovative in finding solutions to problems. So another manager commented:

I like a subordinate who has an aggressive attitude. He has to show initiative, be innovative, and be willing to take some risks. With an aggressive attitude, I can normally guide him in the direction in which he needs to go.

The differing views expressed by these managers illustrate the fact that it is often difficult to achieve the optimum balance in Stage I between willing acceptance of routine assignments and aggressive searching out of new and more challenging tasks.

Another characteristic of the work in this stage is that the individual customarily gets assignments that are part of a larger project or activity directed by a senior professional or a supervisor. Many young professionals find such a relationship frustrating. They are eager to have their own project or their own clients.

Such an attitude is understandable, but a person who tries to escape the subordinate relationship too quickly will miss out on an important aspect of career development. He will fail to learn what others have gained by experience. More important, if he undertakes sole responsibility for work he's not prepared to do, he may soon acquire a reputation for mediocre performance, which will be hard to overcome.

Relationships

As we have just indicated, the primary relationship in Stage I is that of being a subordinate. Our interviews suggest that the individual's skill in managing that relationship may be a critical factor in building an effective career. Ideally, in this stage he will work with a mentor who knows how to design a study, structure an audit, or analyze the critical risks involved in a loan. He works

closely with the mentor, learning from observation and from trial and correction the approaches, the organizational savvy, and the judgment that no one has yet been able to incorporate into textbooks. He follows instructions and carries out detailed and sometimes boring work in exchange for the things he learns and the sponsorship of his mentor.

If he learns quickly and well at this stage, he will be given increasing responsibility. If he fails to do so, however, he may continue to do the routine work under close supervision as long as he remains with the organization. Tom Johnson's experience in a large research organization illustrates this point:

In my first two years in the company I was unhappy with my job. I worked for a man that I disliked and did not respect. He provided very little assistance or guidance. As a result, I made little or no progress. Then I began to work with another engineer who could get things done; he protected me from the flack coming down from above. He provided a climate that I enjoyed and he was willing to go to bat for me. When he became a formal group leader, I insisted on being transferred into his group, where I became the informal leader. Later, he recommended me for a supervisory position.

Tom's experience points out some of the benefits of having a good mentor in the early stages of a career as well as some of the problems of having a poor one. The mentor knew the right people and could show Tom how the system worked—how to lay out a job, how to get computer funds, how to requisition necessary equipment and travel funds, how to negotiate faster delivery from suppliers, and so on. A mentor is also extremely helpful when anyone is learning the ropes in a complex organization.

A good mentor often becomes a model that the Stage I person can follow whenever he is unsure how to approach a

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problem. He instructs and provides the subordinate with a chance to try his hand, while making sure that he doesn't make important errors. These and other benefits suggest that finding a good mentor should be a key agenda item for any professional entering an organization. Providing him with the opportunity to find such a mentor is an equally important responsibility of higher-ups in the organization.

Psychological issues

The psychological adjustments a person makes in Stage I are as critical as the way

the activities are performed or the relationships that are developed. One of the major problems is adjusting to the dependence inherent in the role of subordinate. The people we interviewed said that in this stage a person "is expected to willingly accept supervision and direction . . ." and "is expected to exercise *directed* creativity and initiative."

Many professionals looked forward to completing their education so they could be free of the demands of their professors and find the independence they believed their profession provides. It is easy to understand their irritation when they find themselves forced once again into a dependent relationship. A physicist in a highly respected applied research laboratory described his feelings during his first year:

My first year here was frustrating. I had a good record in graduate school. I was ready to go to work and make a contribution. But for a year, no one paid much attention to my suggestions. I almost left. It took me a year to realize that I didn't yet understand the complexity of the problems we were working on. Now I try to take enough time with new people to help them understand the dilemma of that first year.

Another difficult adjustment is learning to live with the never-ending routine work. A recent MBA described his frustrations in this area as follows:

My job is very boring. All I'm doing is routine financial analysis. This work could be done by a high school graduate with a calculator. They didn't tell me in the MBA program that I'd be doing this routine work. We spent our time in the program discussing cases with important problems to be solved.

Many young professionals find themselves in a similar position, and it is a risky one. If they lose interest in the job and do sloppy work or lay down on the job, they may acquire a reputation that will compromise their future career development.

STAGE II

The primary theme in Stage II is independence. The individual who makes the transition into Stage II successfully does so by developing a reputation as a technically competent professional who can work independently to produce significant results. John, a young financial analyst, describes his transition into this stage:

After about a year and a half with the company, I was capable of working on my own and therefore was placed in charge of monitoring the procurement accounts. Before this time, whenever a person from another department came in to ask a question, I had to consult with my supervisor before making a decision. When I was in charge of the accounts, this was no longer necessary.

Activities

Most professionals look forward to having their own project or area of responsibility. This does not mean that they are allowed to work completely on their own, because most projects must be coordinated with other projects and activities, but they are no longer closely supervised on the specific methods of getting the job done.

In this stage, a person is expected to hone his professional skills to a high level. One way to achieve this competence is to develop an area of specialization. The major career dilemma in this stage is how much to specialize. There is a great deal of discussion and dissension on this issue—with most people taking a strong stand in favor of their particular point of view. An article in *Business Week* (October 12, 1974) offers this advice to aspiring managers:

Get experience in several fields—engineering, sales, manufacturing—right off, and be sure to get your ticket punched in finance early. If

you're heading for the president's office, become a generalist fast.... Get out of your specialty fast, unless you decide that's all you ever want to do. This means rapid rejection of the notion that you are a professional engineer, lawyer, scientist, or anything but a manager.

Our data suggest that this advice could be misleading if a young professional interprets it to mean that he need never develop and demonstrate solid competence in some critical task of the organization. For in doing so, he will fail to establish a major building block to his career.

The environment in which most professionals operate is changing so rapidly that it is nearly impossible for any one individual to develop expertise in all areas of his field or profession. Therefore, it is often advisable to become a specialist, at least temporarily, and gain a reputation for competence within that specialty.

Using this strategy of focusing his energies in one area enables the individual to develop a sense of competence. In addition to increasing his self-esteem, the individual also tends to enhance his visibility in the organization. A person who has done outstanding work in one area is more likely than a jack-of-all-trades to gain visibility in a large organization.

There are two primary approaches to selecting an area of specialization. One strategy is to choose a content area in which to specialize, such as a CPA who is an expert on tax problems for banks, or a scientist who focuses on nondestructive testing, or a banker who concentrates on loans to utilities. The other is to develop a set of specialized skills and apply those skills in solving a variety of problems. People who are skillful in computer applications, statisticians, and those who are particularly effective in dealing with clients all fall into this category.

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There are risks of specializing, of course, such as becoming pigeonholed in one area, or ending up in a specialty that's being phased out. But our research suggests that a carefully selected specialty in Stage II has usually formed the base for a productive and successful career. Failure to establish such a base is a risk few professionals can afford to take.

Relationships

In Stage II, peer relationships take on greater importance. A person at this stage continues to be someone's subordinate. But he comes to rely less on his supervisor or mentor for direction. This transition is not easy, involving as it does a change in attitude and behavior on the part of the supervisor as well as the individual himself.

Some supervisors are unable to

make this switch, and the subordinate may need a transfer to accomplish the transition. Ray's experience as an electrical engineer with two supervisors illustrates this point.

My first project engineer taught me a lot about basic engineering, but after a while I didn't need all the handholding and direction. So I was happy to be transferred to a new project. The new project engineer was a better manager. He helped me to expand my sphere of influence. He encouraged me to develop contacts with people in my field, both inside and outside the company. He showed me how to interact with these people as well as how to make presentations to management and customers. I also learned how to write papers while I worked with him, and several of my papers were published during that period.

Psychological issues

It seems logical that everyone would want to move from dependence to independence; the transition should be easy. Far from it. By age 25 we have usually had a great deal of experience and indoctrination in being dependent, but little preparation for real independence. From the first grade to graduate school, to ensure a good grade the student has to find out what the teacher wants him to do and then do it. Similarly, on the first job the task is to find out what the boss wants done and then do it.

To move into Stage II, a professional needs to go beyond that dependence and begin to develop his own ideas on what is required in a given situation. He needs his own standards of performance. Some help in developing those standards is available from peers and from professional standards, such as generally accepted accounting principles or engineering safety standards. Still, judgment is necessary in applying any professional standards.

Developing confidence in one's own judgment is a difficult but necessary

process. One scientist's experience with this process may illustrate the point:

I had been working with my mentor on research projects for three years before I developed the necessary confidence to submit a proposal on my own. But I found that my confidence was short-lived. I had been used to making decisions, but I had always checked them with my mentor; and he made the final decision, wrote the final draft, and so on. Now that I had my own project I lacked the confidence to make any of the important decisions. He was unavailable for about six months, and I was almost paralyzed during that period. I made very little progress on the project. Eventually I discovered that I could get the opinions of other people in the department and then make a decision using their input. It was a major discovery for me to find I didn't need a boss to approve my decisions.

This quotation came from a scientist, viewed by others as a very promising young man, who later became a successful professional.

Some people find Stage II uncomfortable and spend too little time in it to develop the skills that have to be acquired in

this stage. This often happens when an individual takes on a supervisory position before he has had a chance to establish himself as a competent professional. Often the organization and the individual conspire in moving the person into a management position too soon.

The opportunity may be enticing, but it involves a high degree of risk. Time after time in our study, we encountered first-level managers who were not effective in their positions because they did not understand the technical aspects of the work they were supervising. This tended to undermine the manager's self-confidence as well as the confidence of his subordinates.

Our research indicates that doing well in Stage II is extremely important in the process of career development. Moreover, many people remain in Stage II throughout their careers, making substantial contributions to the organization and experiencing a high degree of professional satisfaction. However, the probability that they will continue to receive above-average ratings diminishes over time, if they do not move beyond this stage.

"We have sometimes called Stage III the mentor stage because of the increased responsibility individuals in this stage begin to take for influencing, guiding, directing, and developing other people. It is usually persons in this stage who play the critical role in helping others move through Stage I."

Raymond L. Price is a doctoral candidate in organizational behavior at Stanford University, Graduate School of Business. Before moving to Stanford, he received a B.S. in psychology and an M.A. in organizational behavior from Brigham Young University, where he also taught organizational behavior and personnel administration. Currently, he is working with William G. Ouchi in an intensive study that contrasts the management philosophies and styles of two companies and the impact of these different philosophies and styles on their employees' lives both within the organizations and outside.

Among his research interests are the impact of organizations on people and how people influence an organization's structure and processes. His consulting includes membership in a multiperson consulting team that is engaged in an ongoing effort to change the management style and the quality of worklife in a large organization that includes over 20 field units.

STAGE III

We have sometimes called Stage III the mentor stage because of the increased responsibility individuals in this stage begin to take for influencing, guiding, directing, and developing other people. It is usually persons in this stage who play the critical role in helping others move through Stage I.

A second characteristic of persons in Stage III is that they have broadened their interests and capabilities. The tendency to broaden comes about quite naturally for

many professionals as part of the work process. One researcher who had been very specialized described his experience this way:

When you are very close to the data, you are able to see the small differences. If you are observant and in a fruitful area, you soon have more ideas than you can possibly pursue by yourself. You run the risk of eliminating some potentially good ideas unless you get others to help you.

From dealing with two or three clients, a bank lending officer or a public accountant may develop knowledge and skills that have applications throughout an entire industry. We have seen engineers learn or develop a new type of computer technique to solve a particular problem, for example, only to find that the approach has wide application to a range of problems facing the organization.

The third characteristic we observed of individuals in Stage III is that they deal with people outside the organization (or organization subunit) for the benefit of others inside. They obtain contracts, get budgets approved, secure critical and/or scarce resources or project funds, help others get salary increases, and so on. The reputation an individual has developed for results and solid achievement in Stage II is initially the keystone to this part of Stage III work.

Activities

We identified three roles played by those in Stage III: informal mentor, idea man, and manager. These are not mutually exclusive; one individual may play all three roles. The point that deserves emphasis here is that a person can carry out Stage III activities from more than one role base.

Informal mentor. Often an individual begins to play the role of informal men-

tor as an outgrowth of his success in Stage II. He is asked to do more work because of his increased capabilities and contacts, which means that he needs more assistance. He begins to find others who can help do the detail work and develop his initial ideas. In doing this, he becomes a mentor for the people who assist him.

One informal technical mentor described his role in these words:

Right now I find the sponsors for our work. I do the conceptual thinking, develop the project, and then get someone to support it. After I get the job, then I must supervise and collaborate with others who do most of the actual work.

He remained the force behind the project and also worked closely with those doing the detail work.

Idea man. Some professionals are exceptionally innovative. Often this kind of individual becomes an idea man or consultant for a small group. Others come to him for suggestions on how to solve current problems. Sometimes he originates an idea and then discusses it with others, who may pursue it independent of his supervision. Either way, he is involved with and influences more than his own individual work. John Jensen, a 59-year-old scientist, described his work in this way:

I sell ideas. I would describe myself as an innovative scientist. When I work on a problem, it starts to bug me. At some time, I will read something and apply it back to solve the original problem. Others often come to me with problems they cannot solve. Generally I can pull some information from my experience or reading and give them a direction to follow in solving the problems.

Manager. The most common role in Stage III and the one most easily understood is the formal role of manager or supervisor. Usually the management role for a Stage III person is not more than one or

two levels in the organizational structure away from the work itself.

Professional competence usually continues to have some importance in the performance of the manager's work. Often the formal management role is given to a mentor who already has been informally performing many of the functions expected of a manager.

Transition to the formal role of manager is not dramatic. Bob Smith, a 37-year-old manager, described a fairly typical pattern of a professional moving into a Stage III management role:

I gained knowledge of other programs and began to develop outside contacts. Finally, I discovered I could sell programs. With more programs coming in, I managed several long-term projects under time and money constraints. The business was expanding, and I was directing more and more technical people. Soon I became acting section manager and, after three months, the section manager.

Relationships

Probably the most central shift that occurs as a person moves into Stage III is the nature of his relationships. In Stage II he had to learn to take care of himself. In Stage III he has to learn to take care of others, to assume some form of responsibility for their work. When the mentor receives an assignment on which he needs the collaboration of others, he quickly learns the importance of tapping additional skills. To get even a small group of professionals working together effectively requires more than tech-

nical skills and an interesting problem. A scientist who had been doing a lot of independent work described the process:

I wrote a successful proposal for basic research in energy. Now there are three other people working on the project. We are going full blast and having a ball. But there are new questions. I have always asked my boss to give me independence, and I gave him loyalty in return. Now I have to learn to do that with the people under me.

He finds that he needs interpersonal skills in setting objectives, delegating, supervising, and coordinating.

At this point he also has begun to accept the fact that he has to satisfy a number of people—multiple bosses. He experiences a shift in the relationship with those above him in the hierarchy. He now has responsibilities downward as well as upward, and he feels some of the tugs of the proverbial man in the middle. He must learn to cope with divided loyalties. If he is seen as only looking upward, he will find it hard to retain the loyalties of those working for him. At the same time, unless he has strong influence—and is perceived as having such influence—he will be ineffective at influencing the people he directs.

Psychological issues

Moving into Stage III requires a number of internal changes as well. The individual must develop a sense of confidence in his own ability to produce results and to help others do the same. He needs to be able to

build the confidence of junior people, not tear it down. If he is threatened by the success of his apprentices, he will not be able to provide them the guidance and freedom they need if they are to progress. There must be a delicate balance between directing them and providing them with the freedom to explore and to test their skills.

Second, he must be psychologically able and willing to take responsibility for someone else's output. As a mentor he assumes an obligation to both the apprentice and the customer. Implicitly he promises both parties that the output will be satisfactory.

Some competent people experience formal supervisory responsibility for others as confining and uncomfortable. Whenever this occurs, the question for the individual and his superiors is whether he can find a role in which he can still exert a broad influence without supervising others or whether he should move back into Stage II work.

Those in Stage III also often find themselves pulling away from technical work. The question is: How far? Some move fairly far away from it without ambivalence. Others, like Bill Rivers, make a great effort to stay close to their field. He describes both the feeling and the effort as follows:

I assumed when I came here that being a good scientist was all that was necessary. Later I found that science was more than just research. You have to conceive, sell, and direct a program. I began to do all those things and found myself in management mainly because I didn't want to work for the other guys they were considering. I want to stay close to technical work and maybe move back into it. Because I know it is difficult to move out of management into technical work, I have stayed close to my field, written papers, and still consider myself to be a scientist.

Some, like Rivers, are able to meet these combined demands better than others, but the tension of keeping a foot in each camp is a problem for almost every professional at this stage of his career.

One further adjustment a person in this stage must make is learning to derive satisfaction out of seeing his apprentices move away from him, become independent, or take on new mentors. This can be a major source of gratification or of difficulty. Even though the mentor expects and looks forward to such eventual movement, differences in expectation about timing and methods may constitute a potential source of conflict and disappointment.

Not surprisingly, this adjustment seems to be harder for the Stage III individual without a formal supervisory position. The formal supervisory position carries certain psychological supports and a role clarity unavailable to those in less traditional roles. Counseling and dealing with the outside on behalf of others inside are part of the role definition of the supervisor. For the informal mentor, it is often less clear that these things are part of his job. On the other hand, the lack of an official boss-subordinate role often allows the nonsupervisor to enter into richer, more comfortable counseling relationships.

Along with conflicts, Stage III also brings long-term satisfactions. Challenges come from broadening the individual's thinking, increasing his knowledge by moving into new areas, or applying his skills to new problems. There is adequate social involvement, recognition from peers, and the satisfaction of helping junior professionals further their careers. Generally, the organizational rewards—both money and status—have reached a fairly satisfactory level. Some people find Stage III, with its combination of counseling, technical proximity,

and recognition and rewards, viable and satisfying until retirement. Some find that they are stagnating and are hard-pressed to keep up with younger competitors. Others move on to a new stage.

STAGE IV

Finally, as our study progressed it became clear that the careers of some individuals contain a definable fourth stage. The key characteristic that identified people in this stage was the influence they had in defining the direction of the organization or some major segment of it. Many of these Stage IV people occupied line management positions; others did not. But each had come, in his own way, to be a force in shaping the future of the organization.

A stereotype of organizations pictures this influence as being exercised by only one person—the chief executive officer. But this influence is in fact more widely distributed among key people than is commonly thought. They exercise this influence in a number of ways: negotiating and interfacing with the key parts of the environment; developing the new ideas, products, markets, or services that lead the organization into new areas of activity; or directing the resources of the organization toward specific goals.

Because these functions are so critical to the growth and survival of the organization, those who fulfill them are highly valued, and only those persons whose judgment and skill have been proved in the past

are trusted to play these roles. Stage IV people have gained credibility by their demonstrated ability to read the environment accurately and respond appropriately.

Activities

The Stage IV people we encountered usually played at least one of three roles: manager, internal entrepreneur, idea innovator.

Upper-level managers are usually but not always in Stage IV of their careers, while a number of middle-level managers are making the transition to this stage. Unlike the Stage III supervisors, they are usually not involved in guiding Stage I people or even supervising people in Stage II. They are not close enough to the details of the daily work to perform in these roles. Instead, they formulate policy and initiate and approve broad programs.

One Stage IV manager described how he had changed his activities in order to work on directing his part of the organization as follows: "I have tried to develop my staff so that I could concentrate on where we are going instead of where we are at the moment. Consequently, things are running more smoothly, and I have more time to myself."

By no means are we implying that Stage IV managers spend all their time doing long-range planning. But the work they do and the decisions they make shape the direction of the organization, or at least a significant part of it.

There are others who, through

their entrepreneurial activities within the organization, exercise an important influence on the direction of the firm. They are people with new ideas and a strong sense of the direction in which the organization should go. They bring resources, money, and people together in the furtherance of their ideas. One professional who seemed clearly in Stage IV described his work this way:

I had an idea for a new product area and was getting very little support through the formal channels. So I talked to a couple of people on my level and convinced them it was a good idea. We went ahead and did it. Today it is bringing in a significant part of our sales. Luckily, it worked out all right.

Entrepreneurs like this are often considered mavericks in their organizations. As long as they are successful at it, however, it is legitimate to be a maverick.

The third type, the idea innovator, seems distantly removed from the manager and the entrepreneur, but he has one thing in common with them—innovative ideas. The biggest opportunities, the most significant breakthroughs, probably most often originate with an individual contributor. He may puzzle over a problem or an idea for years before the solution finally presents itself. Such individuals may work quite closely with a manager or someone else to sell their ideas. Don Jones is an example of the technical or individual contributor. His department manager described him as follows:

Don is one of the brightest people I know, but he doesn't like to talk. His knowledge of the field, however, is outstanding. He is talented, hardworking, and disciplined. He sets goals for himself on a technical project and achieves them. Every two or three years he has a new direction he wants the company to follow, and he is almost always right. He is not a salesman; he gets people like me to sell his ideas.

Often, the Stage IV individual contributor has also established a reputation outside the organization by his professional achievements and/or publications. This enhances his credibility inside the organization and may enable him to play a key role in recruiting and business development.

Relationships

One of the major ways in which those in Stage IV influence the direction of the organization is through the selection and development of key people. One of the managers we interviewed described this part of his work as follows:

Since I first moved into management I have consistently tried to develop my staff. Just as others have sponsored me and made it possible for me to take their positions when they moved up, I have done the same.

There is of course a similarity between Stage III and IV in this respect. But there is also a difference. The individual in Stage IV is not concerned with getting new people started. Instead, he selects those who show promise of performing Stage IV activities in the future and grooms them. The focus is on opening up opportunities, assessing, and providing feedback rather than on teaching and instruction. He watches these people, notes their strengths and weaknesses, counsels them, and tries to guide each one into areas where he is most likely to be effective.

The development of key people is not restricted to Stage IV people in man-

agement roles but also forms a significant part of the work of Stage IV nonmanagers. The entrepreneurs and the idea men also tend to spend a considerable amount of time and energy in the development of key people and, interestingly, often not into their own mold. In one of the large laboratories we studied, the director and two of the associates had been mentored by one senior scientist. He noted that he had suggested they move toward management because their greatest strengths seemed to be in that area. We frequently found that these non-managerial Stage IV people had played a major role in developing many of the most able managers.

Another characteristic of Stage IV people is that they are heavily involved in key relationships outside the organization. One of our Stage IV interviewees described himself as multiorganizational because he worked on so many external boards, committees, and associations. These outside contacts are critical not only because they bring into the organization current information about events and trends in the environment but also because they give the organization the visibility it needs to market its goods, services, and people. Senior partners in CPA firms, for example, are expected to be involved in professional associations and to have developed extensive relationships in the banking and legal communities.

We often found, particularly among nonmanagement Stage IV people, that, writing and publication had been and continued to be a means of achieving visibility and contact. But extensive publication or extensive contact of any kind with the outside is no guarantee of Stage IV status inside the organization. Unless the publications or the outside relationships are structured and focused in areas of major concern to the organization, such activi-

ties are not likely to be viewed positively by others in the organization.

Psychological issues

The psychological shifts a person must make to move successfully into Stage IV are even greater than the changes he must make in his activities and relationships. As we indicated, managers in Stage IV remove themselves from day-to-day operations and transactions. Even as a Stage III mentor it is possible to stay close enough to the operations to retain a sense of personal control. But that must be relinquished by managers moving into Stage IV. Nonmanager Stage IV people often stay closer to some aspects of operations, but they are also relentlessly pulled away. One of the essential psychological shifts in moving to Stage IV is to learn not to second-guess subordinates on operating decisions. It is necessary to learn to influence by means other than the direct supervision of ongoing work—through ideas, through personnel selection, through reviews, through resource allocation, and through changes in organizational design. The need for this mode of influence is even greater for nonmanagerial Stage IV people.

Another critical shift for those moving into Stage IV is a broadening of perspective and a lengthening of time horizons. These individuals must learn to think about the organization as a whole and act in terms of that framework. They must learn to think about the needs of the organization beyond the time period during which they will personally be affected, to think not about next month or next year but about the next five to ten years—or beyond.

Last, because the issues are critical, because they affect the lives of so many people, and because the decisions must be made on the basis of personal judgments,

people in Stage IV must also become accustomed to use power. Even if the individual himself is not initially comfortable in the exercise of power, he will find himself forced to exercise power because so many others depend on him to fight for their programs. He also needs to be able to form alliances and to take strong positions without feeling permanent enmity toward those who differ with him.

QUESTIONS RAISED BY THE MODEL

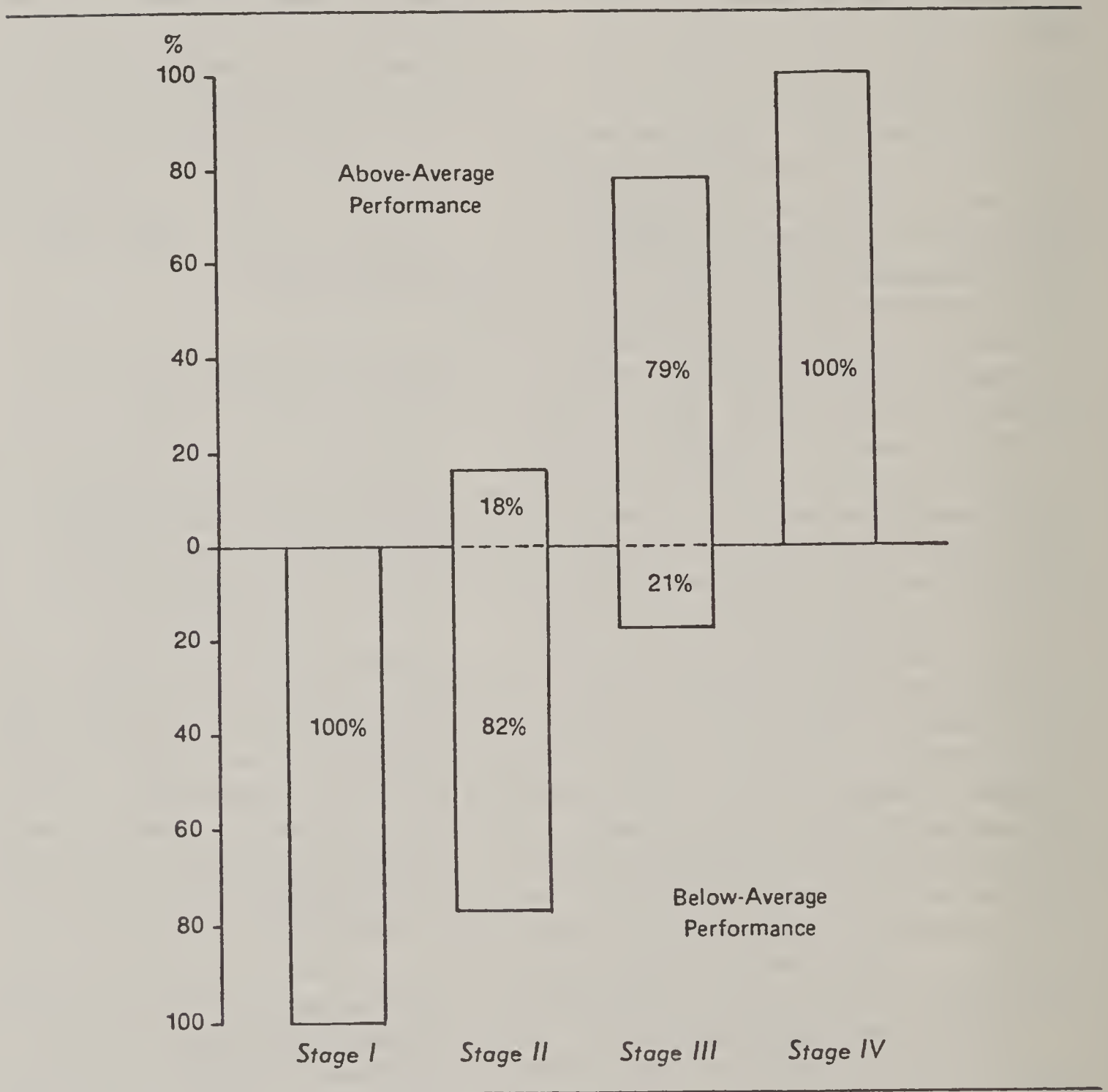
Whenever we discuss this model with professionals and managers, a number of questions arise. One, for example, is whether our data predict that a person who skips a stage will be a failure. We can only answer that we have interviewed a number of successful people who said they did not experience Stage I and a few who said they did not go through Stage II. Some people replied that they did not have a mentor but learned "how the system works" and so on from their peers. In some cases a group of new people joined the organization at the same time, and they helped each other learn what they needed to know.

The preponderance of our interviews suggest, however, that this alternative strategy is usually not as effective as working with a competent mentor. The mentor is better equipped to help the new employee make the transition from the academic setting into a professional career.

Some people say the model implies

Figure 2

RELATIONSHIP BETWEEN STAGE AND PERFORMANCE LEVEL FOR PEOPLE OVER AGE 40



that the only successful people are those who have progressed to Stage IV. That is not our position. People in all four stages make an important contribution to the organization. A number of people in each stage are necessary for organizational effectiveness. However, our research indi-

cates that as people grow older they are less likely to be highly valued if they don't move beyond the early stages.

The data in Figure 2 provide an illustration of that point. We asked managers in two research and development organizations to classify the people in their de-

partments in one or another of the four stages. Figure 2 contrasts stage and performance for all individuals over age 40. This figure suggests that only a small proportion of the people still in Stage II are rated as above-average performers. The implication is clear: To maintain a high performance rating throughout his career, an individual should seek to move at least to Stage III.

Another frequent question is, do people only move forward in these stages? If they do revert to an earlier stage, what is the likelihood of their being able to make the eventual transition to one of the later stages? That seems to depend on the climate of the organization. In some organizations, there seemed to be enough flexibility in both the formal and the informal systems to allow people to do some moving back and forth between stages. Even in these organizations, however, the thought of moving from Stage IV implied demotion, and people were reluctant to make such a transition. An example will illustrate the point.

At age 50, George Dunlop found himself in an uncomfortable position. He had been department manager of a group of 300 employees for eight years, and he realized the job was losing the challenge it had once had for him. He thought it unlikely that he would be promoted to the next step in the management hierarchy, and he felt that he might end up holding that position for the next 15 years. About that time he was given an opportunity to make a shift, which he describes as follows:

I was asked to do a major study for the president that would require my full-time effort. I was reluctant to accept the assignment if it meant giving up my position as department manager because I didn't know where it would lead. I agreed that I would work on it full time for six months, but I would only take a temporary leave from my position as department manager. In order to do the study I had to go back and

learn a lot about surveys, interviews, analyzing questionnaire data, and so on. After I finished the study, the president asked if I would take a position in which some of the things proposed in the report might be implemented. He invited me to become his assistant and work out of the office of the president. It sounded interesting, but I still had a lot of questions. There was the question of status. When I was head of a large department, I had secure status. I expected it to be difficult to assume a staff position with no one but a secretary reporting to me. It took time to adjust to the idea.

After some extensive soul-searching, I decided to take the new position, and it has worked out very well. I enjoy my work, and I believe I'm having a major impact on the whole organization.

George accepted a position which, in our terms, temporarily moved him from Stage IV to a variety of Stage II activity in which he specializes in a new area of research. However, he made the transition successfully. He learned to exert considerable influence in his new role and clearly moved back into Stage IV, but in a different kind of work. This was done in a large laboratory where a precedent had been established by a former laboratory director who had made a similar move. In other organizations, we found less movement of this sort.

Some people have asked if the stages are merely another way to describe the management hierarchy. Stages III and IV are not limited to people in formal management positions in most organizations. Figure 3 shows the percentage of managers and individual contributors in each stage in five organizations. Figure 4 indicates the proportion of professionals and managers who were described by their superiors as being in each stage.

Upper-level managers described many nonmanagers as doing Stage III and IV work. We believe that any effective professional organization will have many

Figure 3

PERCENTAGE OF PEOPLE IN EACH STAGE HOLDING
MANAGEMENT AND NONMANAGEMENT POSITIONS
IN FIVE R & D ORGANIZATIONS

Stage	Individual Contributors (%)	Managers (%)	Total (%)
I	100.0	0.0	100
II	98.7	1.3	100
III	65.2	34.8	100
IV	25.9	74.1	100

nonmanagers in Stages III and IV. Professional organizations that are so rigidly structured that they provide no opportunities for Stages III and IV among nonmanagers are the poorer for it.

CONCLUSION

What is the value of this way of conceptualizing professional careers in organizations? What implications does it have for managing professional employees?

Edgar Schein pointed out in 1971 that "we do not have readily available concepts for describing the multitude of separate experiences that the individual encounters during the life of his organizational career." We experienced the need for such concepts in trying to wrestle with the problems of obsolescence and performance among professionally trained employees. To explain the differences we found in perform-

ance ratings, we especially needed a clearer picture of what Schein calls the organizational definition of a career—"the set of expectations held by individuals inside the organization which guide their decisions about who to move, when, how, and at what speed."

The concept of career stages has provided us with a way of describing that set of expectations. But it is important to note that these expectations were not necessarily a part of the formal organization. In fact, in the organizations we studied it was the informal and often unstated expectations about the critical activities and relationships a person should engage in at each stage that determined both formal and informal rewards. In our view, the study of an organization as a setting in which careers are lived provides both a fruitful lead and a new perspective for understanding organizations.

But our model of career stages has both pragmatic and theoretical implications for those who live in organizations as well as for those who manage them. Individuals need a longitudinal framework within which to form their own career decisions. Managers need a framework for predicting some of the long-term consequences of short-term career decisions. Managers in several organizations have found it useful to examine the stages of career development in their own organizations as a way of identifying the factors that block or facilitate movement between stages.

Performance appraisal and career development

Too often performance appraisal interviews focus only on the past year or, at best, on plans for the forthcoming year. Rarely

Figure 4

PROPORTIONATE DISTRIBUTION OF PROFESSIONALS
AND MANAGERS IN EACH STAGE REPORTED BY
FIVE R & D ORGANIZATIONS

Stage	Proportionate Distribution of Professionals in Each Stage (%)
I	13.4
II	46.2
III	29.3
IV	11.1
	100.0

do a manager and a subordinate discuss careers, in the main because neither the manager nor the subordinate has a way to talk about career development in terms other than the prospects for promotion. The career stages model can be helpful in guiding such a discussion. A number of managers have found that just discussing the model with individuals helps them to think more clearly about their careers and begin to identify alternatives and strategies for development that they hadn't previously considered.

The concept of stages can help a person think more clearly not only about what he should be doing and learning in his present job but also about what he should do if he wants to advance to another stage. A person who has learned what he needs to do in Stage I can begin to demonstrate his ability to work independently, develop an expertise that others recognize, and begin to apply that expertise. A person in Stage II may begin to take a new employee under his wing, show him how the system works, teach him some of the finer technical points, and so on. The Stage I person who wants to progress in the organization could ask himself: "Am I reluctant to make decisions on my own?" A person aiming for Stage IV

could ask himself whether he is able to think about the needs of the organization as a whole and not just about his own group.

Timing

We aren't saying that anyone can promote himself to Stage IV. We do say that people can begin to do the work of the next stage and thus facilitate the transition to that stage. However, timing is a significant issue. There is a fine line between trying to move too quickly into the next stage and staying in the present stage long enough to obtain a learning base sufficient for subsequent growth. Too many people are so intent on getting into management that they don't establish the technical base they will need when they are called on to direct others.

Finally, and this is important, the individual must be responsible for deciding whether to stay in that organization. Sometimes an individual is capable of moving into Stage III or Stage IV activities and willing to do so, but the opportunities in the present organization are limited. On the other hand, failure to develop the skills and attitudes needed at the next stage could negate the effect of a change of organizations.

Manpower planning

Although the primary responsibility for career management lies with the individual, the organization can do some things to facilitate career development. To become

aware of the problem is the indispensable first step. Many managers are insensitive to the changing level of opportunities in their organizations. One company was having serious problems with turnover in its sales force. The company had grown rapidly for ten years, doubling sales every three years. Then growth leveled off to 5 percent a year. However, the district sales managers continued to recruit new salesmen with promises of promotion into management within 18 months and so on. When the promised promotions didn't materialize, the disillusioned salesmen left to go to work for the competition, usually within two or two and one-half years.

An awareness of this problem can come from an analysis of the demographic data. How many employees, engineers, accountants, and managers, for example, does the organization have in each stage? What are the prospects for expansion and for having new positions open up? What is the turnover in each group?

It is also important for managers to share data with their people. Recently 60 upper-level managers in a large organization were asked whether they thought they would be promoted at least one more time before retirement. Fully 80 percent said no, not because they felt they

lacked ability but because they felt there were no opportunities. In fact, the organization was planning on having most of them assume higher-level responsibilities.

Dual ladders

The concept of career stages could help to explain some of the confusion and disillusionment that have arisen around the dual ladder. In attempting to recognize the contributions a nonmanagerial professional can make to an organization, most dual ladder programs have dichotomized the technical and the managerial roles. Often the roles in the technical ladder are described in terms of the lone individual contributor—a super Stage II person.

As we noted earlier, organizations have other roles for their experienced and competent senior people to fill. Stage III people, whether or not they are in management, tend to deal with the outside, train and develop others, and provide direction for important projects or activities. A recognition of the similarities between the activities and relationships of Stage III managers and Stage III nonmanagers could help professionals to recognize that some experience in a management position may be a legitimate form of preparation for a senior tech-

“All our research indicates that the job assignment is the single most important variable in career development. . . . A change of job assignments is no panacea, but it can be pivotal in helping people develop in their careers.”

nical role, just as a Stage III or IV nonmanager may make the best candidate for a formal management slot.

Job assignments

All our research indicates that the job assignment is the single most important variable in career development. There are many ways in which this variable can be manipulated. A person who is seen as too narrow can be moved to a new project that forces him to apply his existing skills to new problems. Someone who is finding it difficult to become independent of his mentor can be transferred to a job that facilitates such a transition. A change of job assignment is no panacea, but it can be pivotal in helping people develop their careers.

Finally, organizations need to find ways of loosening their structures, rules, and procedures to make it possible for more people to move through the stages. In most organizations more people combine the ability and desire to do Stage III and IV work than are allowed to do so. Often there are policies or traditions that permit only certain people to deal with customers, suppliers, and so on or that make it difficult for individual contributors to serve as mentors. Some managers are unwilling, for example, to let senior employees serve as mentors to the newcomers in the organization. Sometimes their fear is justified, but more often it prevents the formation of a very productive relationship.

Most organizations and most managers are both unsuccessful and uncreative in managing senior professionals. Organizations that learn to perform that task well will have a considerable competitive advantage.

Organizations need to be more creative in making it possible for people to

move both ways through the stages without the fear of a clear or permanent loss of status or prestige. Often the individual and the organization are locked into motivating an unrewarding relationship. It needs to become much easier for people like George Dunlap to make the transition that he made. As more senior managers set the example of this type of transition, hopefully it will become a more acceptable career alternative.

Consciously or unconsciously we all carry in our heads models to help us think about careers in organizations. We have concluded that many of the models being used to make decisions that affect careers are misleading. In our view, the longitudinal concept of career stages can be helpful to both professionals and managers as they make decisions about their careers.



SELECTED BIBLIOGRAPHY

Research in careers in organizations has been going on in a wide variety of settings and disciplines. Much of the salient work of psychologists, sociologists, economists, and counselors completed by 1969 has been reviewed in *Orientations and Conflict in Careers* by A. Zaleznik, G. Dalton, and L. Barnes (Harvard University Press, 1970, see esp. pp. 431-66.) A recent book by Douglas T. Hall, *Careers in Organizations* (Goodyear Publishing Company, 1976) brings the review more up to date. Hall's book provides a fairly comprehensive source on career theory, factors in career success, organizational career-management practices, and self-management of careers.

There are now a number of centers where research on careers in organizations is being carried out. One group led by Edgar

Schein has been working at M.I.T. Two published papers probably best represent that work: "The Individual, the Organization and the Career: A Conceptual Schism" (*Journal of Applied Behavioral Science*, July-August 1971, pp. 401-426) is one of the most successful attempts to conceptualize the factors involved as the individual moves through the organization. Schein takes a thoughtful look at the relationship between the socialization of the individual into the organization and the individual's power to innovate and influence the organization. In the second article, "How Career Anchors Hold Executives to Their Career Paths" (*Personnel*, May-June 1975, pp. 11-24), Schein summarizes several years of research on the careers of a population of young managers and provides a very useful typology of career paths.

Donald B. Miller of IBM has looked for a number of years at "career vitality." He reported a number of interesting ideas in a recent article, "How to Improve the Performance and Productivity of the Knowledge Worker" (*Organizational Dynamics*, Winter 1977, pp. 62-80). He suggests techniques, both social and technical, to help the knowledge worker become more productive and he includes a description of how these techniques are implemented in a division of IBM.

Douglas T. Hall, now at Northwestern University, and his wife, Francine S. Hall, have also been carrying out some very interesting work. Some of their ideas are reported in a recent article, "What's New in Career Management" (*Organizational Dynamics*, Summer 1976, pp. 17-33). They identify several current problems in managing careers in organizations and present several alternative approaches for dealing with them. This article focuses particularly on the problem of promotion in a stable or contracting organization.

The first two authors of this article, Dalton and Thompson, have been heading up a fourth line of inquiry into careers in organizations. We began by looking at the relation between age and performance among engineers. For a report of this work see G. Dalton and P. Thompson's "Accelerating Obsolescence of Older Engineers" (*Harvard Business Review*, September-October 1971, pp. 57-68). We were joined at Brigham Young University by Raymond Price and others and began looking at career stages. That work is reported most fully in this article. Some of the implications of career stages, particularly for managers of R & D, are reported in Thompson and Dalton's "Are R & D Organizations Obsolete" (*Harvard Business Review*, November-December 1976, pp. 105-117).